

weather when the depth does not exceed 600 or 700 fathoms. Unhappily, in bad weather, the zoologists cannot study the specimens found in a living state, the motion of the ship killing the animals very soon. The Expedition arrived at Namsos August 14, the scientific staff and the crew being much exhausted by the perpetual bad weather. At Namsos we stayed till the 20th to rest. Meanwhile magnetical observations were made on shore. On board, the bad weather entirely prohibited our making any.

After leaving Namsos, series of soundings every four miles (nautical) were taken from the Folden-fjord, and due west. First we found a hollow 200 fathoms deep, with a constant temperature of  $7^{\circ}$  C., then a slightly inclined ridge, whose highest point shoaled up to 56 fathoms, then came an incline down to 120 to 150 fathoms, and after that a flat bottom at the last-named depth. Over this flat the temperature was constantly  $7^{\circ}$  C. At last, about 11 o'clock on Monday the 21st, the depth increased, the temperature decreased, and we found ice-cold water in somewhat more than 300 fathoms depth. This was 100 nautical miles off the nearest coast and not very far from our last deep-sea station, where the depth was 580 fathoms, temperature  $-1^{\circ}.3$ . Such an extent of the Norwegian banks at this place was not expected, but is very interesting. It now seems probable that the boundary line of the ice-cold water runs from a point 100 miles off the coast at Namsos up to Spitzbergen, outside the Lofoden Islands, and this breadth of the bank explains the mild winter climate which Northern Norway enjoys. As a series of soundings and temperatures showed the next day in a line direct from west to east in the latitude of the mouth of the Trondhjem-fjord, the boundary of the bank and of the ice-cold water goes here and off Romsdal much nearer to the coast. The water was at  $0^{\circ}$  C. in 345 fathoms, and at the bottom  $-1^{\circ}.1$  C. in 480 fathoms depth. On the bank inside there was a temperature of  $7^{\circ}.3$  on the bottom at 170 fathoms depth. On the morning of the 23rd the *Vöringen* was outside the coast of Romsdal, and in foggy weather got very near the dangerous coast. Happily the fog lifted and a pilot came on board, who took the ship into Molde. The next day the expedition was sounding, trawling—with no result—and taking serial temperatures in the Romsdal-fjord. The result was the same temperature in the depth of the fjord as in the other deep fjords on the west coast of Norway, viz.,  $6^{\circ}.2$ . In the evening the expedition arrived at Alesund, where the ship in a very strong gale was nearly driven ashore in the harbour. Happily the wind abated and the chains held, so that the voyage could be continued the next morning.

On Saturday, August 26, the expedition returned to Bergen, where the ship will be paid off. The members of the expedition are all very well and look with much interest to the time when they can commence to discuss their observations which, in spite of the bad weather generally experienced this summer during the cruise, are numerous and interesting.

### NOTES

THE Prussian Government has sent the following gentlemen to examine thoroughly the special Loan Collection of Scientific Apparatus, and to report on the objects exhibited:—From the Ministry of Commerce—Professors-Doctors Landolt, Aix-la-Chapelle; Krant, Hanover; Liebermann, Berlin; Wüllner, Aix-la-Chapelle; von Quintus-Isilius, Hanover; Gerland, Cassel; Paalzow, Berlin; Helmer, Aix-la-Chapelle; Stahl, Aix-la-Chapelle; Dörgens, Berlin. From the Ministry of Education—Professors-Doctors Cronecker, Leipzig; Abbe, Jena; Hensen, Kiel; Karsten, Kiel; Herr Appun, Hanau; Professors-Doctors Kundt, Strasburg; Listing, Göttingen; Cohn, Breslau; Lassaulx, Breslau; Bruns, Berlin; Löwenhorz, Berlin. From the Ministry of Agriculture—Dr. Scheibler, Berlin.

THE annual meeting of the Ray Society was held in Glasgow on Friday under the presidency of Prof. Young. The secretary, Rev. T. Wiltshire, submitted the report of the council, in which they congratulate the members upon the progress of the Society. With regard to the issue of the volumes, some unexpected delays, chiefly due to the lengthened period requisite for the careful colouring of the plates, have hindered the appearance of the work

for the year 1875. As, however, all the plates are at the present moment coloured, and most of the text in type, it is certain that the book will be published within a brief period. Originally it was proposed that the volume for 1875 should comprise a description by Mr. G. B. Buckton of the whole of the British Aphides. The plan suggested at the commencement has, from the exigencies of the case, been somewhat defeated; the researches of Mr. Buckton have brought to light so many new species that it seems probable that the Monograph will require at least two, if not three, volumes of text and plates. The first of these, containing forty coloured plates and the necessary introduction, will form the publication for the year 1875. The succeeding parts are now being proceeded with, and will be ready as soon as an opportunity offers for their issue. Since last annual meeting Prof. Huxley had offered to prepare an introduction to the MS. of the Tunicata left by the late Mr. Hancock, and Mr. Cameron had proposed a monograph on the British Tenthredinidae. These have been accepted, and will be commenced with all possible speed. On account of the changing location of the British Association, the Council propose that for the future the annual meetings be held in London within three months of Lady-day. It was recommended that the following names be added to the Council:—Prof. Bentley, Sir A. Brady, Dr. Gwyn Jeffreys, and Mr. Hudson. The statement of accounts showed that there was a balance in favour of the Society of £156 18s. 11d. On the motion of Prof. Balfour, the report was adopted. Votes of thanks were subsequently passed to the retiring members of Council and to Prof. Young for presiding, and the meeting separated.

A GENERAL meeting of the Mineralogical Society of Great Britain and Ireland was held in the Natural History Class Room of the Glasgow University on Wednesday, Sept. 6. The chair was taken by Prof. M. Forster Heddle, M.D., in the absence of the president, Mr. H. C. Sorby, and there was a large attendance. The chairman delivered an address on "Scotch Minerals, how and where to find them." This was followed by the reading of a paper by the president "On the Critical Point in the Consolidation of Granite." Prof. Haughton, of Trinity College, Dublin, then followed with an address on a new principle in the consolidation of porphyritic rocks, which he proposed to call "the principle of least paste." Some discussion of this principle and of Mr. Sorby's paper then took place, in which Prof. Harkness and Dr. Bryce joined. The following papers were afterwards read:—"On a Mineral from New South Wales, presumed to be Laumontite," by Prof. A. Liversidge; "Notes on an Old Catalogue of Minerals," by Prof. A. H. Church; "On the Occurrence of Achroite at Rock Hill, in the Parish of St. Austell, Cornwall, and on the Black Tourmaline of the same Locality," by J. H. Collins.

THE Oriental Congress, which met at St. Petersburg during the first ten days of the present month has been doing much good work in its own department. Many papers have been read, most of them connected with Russian, or at least Asiatic Russian, ethnology and archaeology. The members of the Congress have been heartily welcomed and well treated at the Russian capital, and among those who have enrolled themselves members is the ubiquitous Emperor of Brazil. Among the papers read was an important one on the "Caucasian Race," by Prof. Gregorieff, in which he pointed out the accidental origin and the unsuitability of the term, and endeavoured to trace the origin and migrations of the race indicated. He showed that even at the present day many Aryans are to be found in Central Asia. Mr. Berger made a communication on many of the ethnographical objects belonging to the Caucasian Department of the Congress's Exhibition. Another paper on the Aryan Race was by the Rev. Mr. Long, of Calcutta, and Prof. Oppert remarked on the Asiatic tongues

incapable of being referred to either the Aryan or Semitic families, but which are found in the Arrow-headed texts. These languages he styled Susi-Medic, which, he said, were spoken in Iran and Khusistan centuries before the Persians bore rule in these countries. A series of questions was discussed relative to Central Asia, proposed by the Organising Committee in a general list of problems issued before the opening of the Congress. One of these was, "Was there a Mongol Tribe or People before Genghis Khan? or is the name Mongol nothing more than a dynastic one adopted by Genghis to denote the Empire which he founded?" The loose use of the term "Turanian" was much criticised. The Russian Government has given the Congress a hearty welcome.

ON Tuesday the Geographical Congress, convened by the King of the Belgians, met in the Palace, at Brussels, under the presidency of his Majesty. The King said that in calling the Congress he had no ambitious aims in view, but that his sole object was to accelerate the introduction of civilisation into Africa. He afterwards dwelt upon the necessity of establishing hospices and scientific stations on the confines of the unexplored territories there, and the formation of an international committee to carry out the work. Nachtigall, Schweinfurth, Rohlf, Grant, and Cameron gave a brief *résumé* of their travels; Negri also spoke. The Congress, on the King's proposition, then divided into sections by nations. The English met at four with the French, and recommended a station from which the Lakes could be reached. Admiral de la Roncière le Noury and M. Mounoir are present as representatives of France, and Sir Bartle Frere, Sir John Kennaway, Commander Cameron, Sir Henry Rawlinson, Sir Rutherford Alcock, Sir Harry Verney, and others represent Great Britain. The convening of this Congress is highly creditable to King Leopold, and may be regarded as significant of his zeal for science and the spread of civilisation. This kind of work, like mercy, of which, indeed, in the highest and truest sense, it is but an outcome, "becomes the throned monarch better than his crown."

WE notice with pleasure the appearance of the first number of the *Bulletin* of the newly-founded Zoological Society of France, which came into existence this summer. The present number of the *Bulletin* contains six papers, the first being by the president of the Society, M. Jules Vian, treating of the *Phaleris psittacula* in Sweden, and of the occurrence in France of the small Puffin (*Mormon graba* of Brehm), to which the author is inclined to grant specific rank. Of the *Phaleris* a description and figure of the skeleton is given. The second paper is by M. E. Simon, and describes two new species of spiders from the Congo. The third contribution is by Dr. Jousseume, on the "Faune Malacologique des Environs de Paris." Mr. Bowdler Sharpe, of the British Museum, in conjunction with M. A. Bouvier, next describes a collection of birds sent from the Congo district by M. Petit. A new swallow, *Psilidoproctus Petiti*, is figured (Pl. II.), but perhaps the less said about this plate the better, as the artist, M. Bevalet, appears unable to distinguish between the characteristic habit of a swallow and a humming-bird, to the drawing of which latter group he has been for some time devoted in connection with M. Mulsant's work on the *Trochilidae*. M. L. Bureau communicates an abstract of his essay on the Booted Eagle (*Aquila pennata*), which he had lately read before the French Association for the Advancement of Science at Nantes; and lastly, Prof. Perrier gives an account of the star-fishes collected in the Cape Verd Islands by M. Bouvier. We wish every success to the Society, whose address is at present No. 55, Quai des Grands Augustins, Paris.

THE death is announced, at the age of eighty-one years, of the German naturalist, Christian Ehrenberg, *doyen* of the Professors of the University of Berlin. He was born in 1795. By the age

of thirty-two he had published numerous works, and was made professor extraordinary of the University. In 1829 Humboldt chose Ehrenberg to accompany him in his expedition to Siberia. He was made titular professor in 1839. Ehrenberg has done much to popularise the use of the microscope. His great treatise on the Infusoria, for which he collected the materials during his journey with Humboldt and Gustav Rose, is well known to naturalists.

PROF. HUXLEY, we learn from *Harper's Weekly* of the 9th inst., made an auspicious start on his tour through the United States. After a notable dinner given to him at New Haven, by Prof. Marsh, he departed with Governor Ingersoll, Prof. Marsh, President Bishop of the New Haven Railroad, and a few friends, in a palace-car for a trip through Canada and westward to the Mississippi. On his return, after visits to Prof. Agassiz and Prof. Gray, of Harvard, he was on Tuesday to deliver an address at the opening of the Johns Hopkins University at Baltimore, and then betake himself to England again. "All this, of course, on the basis that American citizens do not in the mean time kill the British *savant* with the beef, the birds, and the multitudinous bibles for which America is famous."

WE are glad to see that the Yorkshire College of Science is so far advanced and established as to publish a Calendar, a copy of which has been sent us. It contains ample information as to the classes, resources, aims, and work of the College, and, to judge from the programmes of the various classes, a great amount of valuable instruction must be given during the session. We hope to see the Calendar enlarged each year, and the number of professors and classes increased, until the College becomes a great centre of liberal culture for Yorkshire. Any one wishing to learn what is the present position of the College should get this Calendar and the Prospectus of day and evening classes for 1876-77.

THE arrangements for the South African International Exhibition, to be opened at Cape Town in February next, are making satisfactory progress. Everything intended for exhibition must be shipped from London not later than the first week of December. The European Commissioner is Mr. Edmund Johnson, 3, Castle Street, Holborn.

WE have received a catalogue of the Industrial Exhibition which is being held at Helsingfors. It contains 3,290 entries in the various departments of industry represented; so far as we can judge from the catalogue, the exhibition is highly creditable to the Finlanders.

THE programme for the next French International Exhibition, 1878, has been published in the *Journal Officiel*. The regulations are substantially the same as in former exhibitions. The building is to be a long parallelogram, and will be divided into rectangular stripes, two of these stripes being allotted to special divisions, one for France, and the other for foreign countries. Fine arts will enjoy the central stripe, and consequently be an exception. Right and left will be placed the two stripes allotted to scientific industries, under the name "Education, Teaching, Methods and *Matériel* of Liberal Arts." Amongst the principal attractions of the Exhibition will rank a gigantic Giffard steam captive balloon. It will measure 21,000 cubic metres, and exceed by 10,000 the former captive balloon at Ashburnham Park. The rope will weigh 20 pounds per yard, and the elevation will be 500 yards. The steam-engine will have 200 horse-power; thirty persons will ascend at once, and in calm weather, 100. The new captive balloon will require no circus for protection, and will stand in the midst of a large square fronting the bridge in the central alley of the gardens. Meteorological observations with special instruments will be made during the ascents for the instruction of excursionists, and recorded for the benefit of science.



MR. WYLD, of the Strand, has published a map which will be found very useful by those who desire to understand, in all its bearings, the significance of the present unhappy war which is being waged in the Turkish dominions. The object of the map is to show the distribution of the various peoples which inhabit the Turkish provinces and dependencies, this object being effected by the use of various shades of colour for the various families of people—Slaves, Walachians, Albanians, Turks, &c. It shows in what a comparatively small minority are the real Turks, and how important is the Slav element, though the Mahomedans are spread more or less over all the provinces; still they are in a decided minority. The variety of colouring used is at first rather puzzling, as it is difficult to make the shades sharply distinct, but after a little careful examination a very satisfactory general idea will be obtained of the ethnology of the Turkish dominions.

DR. MICHAEL FOSTER is preparing a Text-book of Physiology for the use of Medical Students and others; it will be published in November by Messrs. Macmillan and Co.

MESSRS. MACMILLAN AND CO. have published as a shilling pamphlet Dr. Richardson's address, "Hygeia, a City of Health," which he delivered last October at the Meeting of the Social Science Association at Brighton.

MR. W. F. HUSBAND has been selected as secretary and registrar to the Yorkshire College of Science, and secretary to the Leeds Philosophical and Literary Society. Mr. L. C. Miall retains the office of curator of the society's museum, also holding the professorship of biology at the college.

The *Times* Paris correspondent states that in digging the new basin at St. Nazaire, animal remains, tools, weapons, and utensils have been found in a sandy stratum six metres from the surface. Last year a dolichocephalous skull was found near the same spot, which Dr. Broca declared to belong to the age of stone.

THE Council of the Paris Observatory has resolved to attempt the manufacture of object-glasses by machinery, instead of by hand. The mechanical cutting of flint and crown glass will be executed by M. Lessautre, the well-known clock-maker, who prepares the optical part of French lighthouses by machinery.

WE regret to see that the Italian African Expedition has been so badly treated in its progress southwards, that Capt. Martini has had to go to Rome, deputed by the Marquis Antinori, to request assistance. Most of their baggage has been stolen or destroyed, and every possible obstruction thrown in their way.

THE additions to the Zoological Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from Mauritius, presented by Dr. J. F. Blackley; a Greater Black-backed Gull (*Larus marinus*) European, presented by Mr. W. J. Stebbing; two Common Barn Owls (*Strix flammea*) European, presented by Mr. Thomas May; a Long-eared Owl (*Otus vulgaris*) European, presented by the Misses S. E. P. and A. Warre; two Salt-water Terrapins (*Clemmys terrapin*) from Galveston, Texas, presented by Mr. J. R. Gillespy; two Yellow-billed Ducks (*Anas xanthorhyncha*) from S. Africa, two Plumbed Colins (*Callipepla picta*) from California, received in exchange; two Bronze-winged Pigeons (*Phaps chalcoptera*) bred in the Gardens.

## SOCIETIES AND ACADEMIES

### PARIS

Academy of Sciences, Aug. 28.—Vice-Admiral Paris in the chair.—The following papers were read:—Theorems relative to couples of segments having a constant length, by M. Chasles.—Sixth note on electrical transmissions through the ground, by M. Du Moncel. Placing two zinc plates in two wells 161 metres apart, one in a farmyard, the other on the border of a wood, and connecting them with wire and galvanometer, he got a strong current. He next made a couple with the two waters, separated

by a porous vessel, and got a deflection of 80°, the electrode in the water from the farm well being positive. This water contained some sulphuretted hydrogen and organic matter; the other was pure; neither showed acid or alkaline properties. The action was peculiar to zinc electrodes (at least as regards direction of current). From other experiments he concludes that beyond 336 metres the resistance opposed by the water of a river remains nearly the same, whatever the distance of immersion of the plates; hence this resistance is probably indistinguishable from that of the ground at a distance less than 336 metres. Under the best conditions the resistance of the ground varies from 4 to 5 kilometres of telegraphic wire, and if wells or the like do not intervene in the communications it may sometimes be enormous.—On the periodic comet of d'Arrest, by M. Leveau. He gives an ephemerides to enable astronomers to observe this small comet on its return in 1877. (It was first observed in 1851, and its period is about 6½ years.)—Letter from M. Wolf to M. Le Verrier. M. Weber, at Peckeloh, on April 4 last, at 4.25 P.M., saw a round spot on the sun, which was seen without spot on the morning of that day, and also of the next day, at Peckeloh, Zurich, and Athens.—Observations on the Planet 165; positions of some variable stars, by Mr. Peters.—Stars near the pole star, by M. de Böe. Besides the known companion there are two others much nearer and fainter. He observed them first in 1869 and has this year verified their existence. They are probably subject to varying brightness and rapid movements round the principal star; and they are perhaps best seen with small objectives.—On alcoholic and acetic fermentation of fruits, flowers, and leaves of certain plants, by M. de Luca. Fruits, flowers, and leaves in a limited atmosphere of carbonic acid, hydrogen, or air, or in vacuum, undergo slow fermentation, liberating carbonic acid, nitrogen, and sometimes hydrogen, and forming alcohol and acetic acid, without intervention of any ferment. In a close vessel the phenomena are incomplete, owing to pressure of the developed gas; but, with ordinary pressure maintained, neither sugar nor starch will be found after the development of gas has ceased; in their place are alcohol and acetic acid in abundance. The hydrogen liberated is doubtless from decomposition of mannite, which is a sugar with excess of hydrogen.—Influence of pine forests on the quantity of rain which a country receives on the hygrometric state of the air and on the state of the soil, by M. Faurat. Comparing the rain-fall for fourteen months on a pine forest and a sandy plain 300 metres off, he finds a difference of 83 mm. in favour of the former, or more than 10 per cent. of the rain-fall on the open ground (the difference was only 5 per cent. in the case of oaks and witch-elds). The annual difference in saturation was (in favour of the air above the pines) ten-hundredths. Of 757 mm. of water which fell, the forest ground received 471 mm.—M. Faye, in presenting Nos. 39 and 40 of *Astronomische Mittheilungen*, made reference to M. Wolf's researches on sun-spots and terrestrial magnetism. The last minimum was in 1867, and as the period is 11½ years, we should have looked for a minimum in 1878, instead of which it has occurred between the end of 1875 and beginning of 1876, showing a remarkable anomaly of more than two years. The variations of the needle are shown to follow the sun-spots with singular fidelity.

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